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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
KHAN, AMINA S	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/524,047
Filing Date: October 13, 2005
Appellant(s): HUEFFER ET AL.

Jacob A. Doughty
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 18, 2008 appealing from the Office action mailed October 18, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 34 and 36 are not rejected under 35 U.S.C. 103 over Komforth in view of Zorn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,033,590	Komforth	12-1997
US 3,053,697	Zorn	09-1962
US 2002/0192366	Cramer	01-2002
US 4,272,242	Plapper	06-1981
US 5,102,422	Christner	04-1992

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 32, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komforth et al. (US 6,033,590) in view of Cramer et al. (US 2002/0192366).

Komforth teaches retanning leather with glutaraldehydes (column 3, lines 25-30), vegetable tanning agents (column 3, lines 40-45), chromium tanning agents (column 3, lines 30-35), kaolins, polysaccharides, dyes, pigments, polyurethanes and nitrocellulose (column 4, lines 1-7,20-40 and 45-67). Komforth invites the inclusion of kaolins and agents which improve the resistance to abrasion and scuffing into the compositions (column 4, lines 35).

Komforth does not teach hectorite or muscovite and the claimed particle sizes.

Cramer teaches the functional equivalence between kaolins, hectorite and muscovite in leather treatment compositions (paragraph 0043). Cramer further teaches the particle sizes are 2 nm to 750 nm (paragraph 0041). Cramer further teaches these compositions provide leather with reduced damage to abrasion (paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the retanning methods taught by Komforth by incorporating the kaolinites, hectorites or muscovite of the particles sizes claimed by Cramer because Cramer clearly teaches abrasion resistance kaolinites, hectorites and muscovites provide to leather in these particle sizes. One of ordinary skill in the art would have been motivated to combine the teachings of the references absent unexpected results.

Regarding the limitation of bimodal distribution, it would be obvious to one of ordinary skill in the art to sift the kaolinites, hectorites, or muscovites such that a bimodal distribution is achieved because Cramer teaches the claimed particle diameters and that the desired particle size can be adjusted by grinding and air sifting. Sifting the resulting clay would obviously provide particles with a diameter less than 0.5μm and particles less than 5μm.

Cramer clearly recognizes that the particle size of the clay particles directly impacts the benefits, such as abrasion resistance or stain resistance, it provides to the surface treated (paragraph 0041), therefore it is clear that particle size is a result effective variable. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within

the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

2. Claims 14-17,21,22,24,26,28,30,32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komforth et al. (US 6,033,590) in view of Zorn et al. (US 3,053,697).

Komforth teaches retanning leather with glutaraldehydes (column 3, lines 25-30), vegetable tanning agents (column 3, lines 40-45), chromium tanning agents (column 3, lines 30-35), kaolins, polysaccharides, dyes, pigments, polyurethanes and nitrocellulose (column 4, lines 1-7,20-40 and 45-67).

Komforth is silent as to the particle size of the kaolins.

Zorn et al. teach that it is conventional to treat chrome, vegetable or organic synthetic tanned leathers with kaolin particles 0.1-50 μm (column 2, lines 4-30) for the benefit of effectively embedding the clay within the leather (column 1, lines 20-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the retanning methods taught by Komforth by incorporating the kaolinites of the particles sizes claimed by Zorn because Zorn clearly teaches that this particle range is conventional and beneficial in treating chrome tanned leathers and is easily embedded within the leather. One of ordinary skill in the art would have been motivated to substitute the particles of Zorn et al. which are of a conventional size for treating chrome tanned leather into the methods of Komforth et al. for the predictable result of effectively treating chrome tanned leathers.

Regarding the limitation of “substances which, owing to their chemical structure, are capable of forming strong hydrogen bonds with the clay mineral", this limitation is satisfied by the chemical moieties nitrocellulose and polysaccharides, which would be intrinsically expected to form hydrogen bonds with the clays.

Regarding the limitation of bimodal distribution, it would be obvious to one of ordinary skill in the art to sift the kaolinites such that a bimodal distribution is achieved because Zorn teaches the claimed particle diameters and sifting the resulting clay would obviously provide particles with a diameter less than 0.5μm and particles less than 5μm.

Zorn clearly recognizes that the particle size of the clay particles directly impacts their impregnation and distribution in the leather surface treated (column 1, lines 15-20), therefore it is clear that particle size is a result effective variable. It would have been

obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

3. Claims 14,16,21,24,30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plapper et al. (US 4,272,242) in view of Cramer et al. (US 2002/0192366).

Plapper teaches tanning leathers with a combination of aluminosilicates and bentonites (column 4, lines 10-30; column 18, lines 25-35). Plapper further teaches that tanning can be accomplished by combining aluminosilicate compositions with tanning agents with vegetable-synthetic tanning materials or chrome tanning materials (column

12, lines 5-15; column 24, example 6). Plapper further teaches that the desired particle size can be adjusted by grinding and air sifting (column 9, lines 15-20).

Plapper does not teach all the instantly claimed components in a single example and is silent as to a bimodal distribution and the particle size of the bentonite.

Cramer teaches the conventional use of bentonites in leather treatment compositions (paragraph 0043). Cramer further teaches the particle sizes are 2 nm to 750 nm (paragraph 0041). Cramer further teaches these compositions provide leather with reduced damage to abrasion (paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the tanning methods taught by Plapper by incorporating the bentonites of the particles sizes claimed by Cramer because Cramer clearly teaches abrasion resistance bentonites provide to leather in these particle sizes. One of ordinary skill in the art would have been motivated to combine the teachings of the references absent unexpected results.

Regarding the limitation of bimodal distribution, it would be obvious to one of ordinary skill in the art to sift the bentonites such that a bimodal distribution is achieved because Cramer teaches the claimed particle diameters and that the desired particle size can be adjusted by grinding and air sifting. Sifting the resulting clay would obviously provide particles with a diameter less than 0.5μm and particles less than 5μm.

Cramer clearly recognizes that the particle size of the clay particles directly impacts the benefits, such as abrasion resistance or stain resistance, it provides to the surface treated (paragraph 0041), therefore it is clear that particle size is a result

effective variable. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

4. Claims 14,16,21,24,30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plapper et al. (US 4,272,242) in view of Christner et al. (US 5,102,422).

Plapper teaches tanning leathers with a combination of aluminosilicates and bentonites (column 4, lines 10-30; column 18, lines 25-35). Plapper further teaches that tanning can be accomplished by combining aluminosilicate compositions with tanning agents with vegetable-synthetic tanning materials or chrome tanning materials (column

12, lines 5-15; column 24, example 6). Plapper further teaches that the desired particle size can be adjusted by grinding and air sifting (column 9, lines 15-20).

Plapper does not teach all the instantly claimed components in a single example and is silent as to a bimodal distribution and the particle size of the bentonite.

Christner teaches the conventional use of bentonites in leather treatment compositions (column 5, lines 20-25). Christner further teaches the particle sizes of commercially available flakes are 0.5-5 μm (column 5, lines 35-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the tanning methods taught by Plapper by incorporating the bentonites of the particles sizes claimed by Christner because Christner clearly teaches bentonites are commercially sold in these particle sizes. One of ordinary skill in the art would have been motivated to substitute the commercially available bentonites of the particle sizes taught by Christner into the leather treatments taught by Plapper for the predictable result of effectively treating leather.

Regarding the limitation of bimodal distribution, it would be obvious to one of ordinary skill in the art to sift the bentonites such that a bimodal distribution is achieved because sifting the resulting clay would obviously provide particles with a diameter less than 0.5μm and particles less than 5μm.

Christner recognizes that the particle size of the clay particles directly impacts the dispersability of the leather treating compositions (column 5, lines 20-55), therefore it is clear that particle size is a result effective variable. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of

the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

(10) Response to Argument

Response to Argument A: Rejection Under 35 U.S.C 103 (Komforth and Cramer)

The applicant argues that one of ordinary skill in the art would not have been motivated to select the clay nanoparticles taught by Cramer for use as carriers in the retanning or fatliquoring methods taught by Komforth and further argues demonstration of unexpected results of the instantly claimed particle sizes in the applicant's specification, page 7, Table 1.

The examiner respectfully disagrees. Komforth clearly teaches the use of carriers such as kaolin in fatliquoring and retanning methods for the treatment of leather (column 4, lines 1-7 and 20-30). Komforth further teaches these impregnating compositions provide the leather with protection against oil or dirt and improve resistance to abrasion, scuffing or other mechanical damage (column 4, lines 29-35). Cramer teaches treatment of leather surfaces (paragraph 0069) with clay nanoparticles of 2-750 nm (paragraph 0041), specifically kaolins and functionally equivalent clays montmorillonite, hectorite, bentonite (paragraph 0043), for the benefits of stain resistance, modification of surface friction and reduced damage to abrasion (paragraph 0040). While Cramer does not specifically disclose retanning or fatliquoring, one of ordinary skill would have been motivated to employ the clay nanoparticles of Cramer into the retanning and fatliquoring methods of Komforth because Komforth invites the inclusion of kaolin particles for the benefits of abrasion resistance and soil resistance and Cramer clearly teaches treating similar leather surfaces with nanoparticles of the same kaolin material, in which these particle sizes are shown to provide improved abrasion resistance and stain resistance to the surfaces treated with them.

Regarding applicant's arguments of unexpected results demonstrated in the instant specification, page 7, Table 1. The examiner argues that the showing is not commensurate in scope with the instant claims which are directed to numerous clay particles and sizes and not exclusively the select species and sizes for which improved shaveability and shrinkage temperatures have been shown.

Response to Argument B: Rejection Under 35 U.S.C 103 (Komforth and Zorn)

The applicant argues that one of ordinary skill in the art would not have been motivated to select the clay nanoparticles taught by Zorn for use as carriers in the retanning or fatliquoring methods taught by Komforth and further argues demonstration of unexpected results of the instantly claimed particle sizes in the applicant's specification, page 7, Table 1.

The examiner respectfully disagrees. Komforth clearly teaches the use of carriers such as kaolin in fatliquoring and retanning methods for the treatment of leather (column 4, lines 1-7 and 20-30). Komforth further teaches these impregnating compositions provide the leather with protection against water (column 4, lines 29-35). Zorn teaches treatment of leather surfaces with kaolins of particle sizes of 0.1-50 μm (column 2, lines 1-21) for the benefits of improving plumpness and filling of tanned leather such as chrome tanned, vegetable tanned or organic synthetic tanned leather (column 1, lines 49-65; column 2, lines 20-30). While Zorn does not specifically disclose treating with the kaolins during retanning or fatliquoring, one of ordinary skill would have been motivated to employ the clay nanoparticles of Zorn into the retanning and fatliquoring methods of Komforth because Komforth invites the inclusion of kaolin particles for the benefits of protection against water and Zorn clearly teaches treating similar leather surfaces with particles of the same kaolin material, in which these particle sizes are shown to impair water absorption and increase plumpness of the surfaces treated with them.

Regarding applicant's arguments of unexpected results demonstrated in the instant specification, page 7, Table 1. The examiner argues that the showing is not commensurate in scope with the instant claims which are directed to numerous clay particles and sizes and not exclusively the select species and sizes for which improved shaveability and shrinkage temperatures have been shown.

Response to Argument C: Rejection Under 35 U.S.C 103 (Plapper and Cramer)

The applicant argues that one of ordinary skill in the art would not have been motivated to select the clay nanoparticles taught by Cramer for use as carriers in the tanning methods taught by Plapper and further argues demonstration of unexpected results of the instantly claimed particle sizes in the applicant's specification, page 7, Table 1.

The examiner respectfully disagrees. Plapper clearly teaches the use of carriers such as bentonite in tanning methods for the treatment of leather (column 18, lines 20-35). Cramer teaches treatment of leather surfaces (paragraph 0069) with clay nanoparticles of 2-750 nm (paragraph 0041), specifically bentonites and functionally equivalent clays montmorillonite, hectorite, kaolin (paragraph 0043), for the benefits of stain resistance, modification of surface friction and reduced damage to abrasion (paragraph 0040). While Cramer does not specifically disclose retanning or fatliquoring, one of ordinary skill would have been motivated to employ the clay nanoparticles of Cramer into the tanning methods of Plapper because Plapper invites the inclusion of

bentonite particles in the tanning methods and Cramer clearly teaches treating similar leather surfaces with nanoparticles of the same bentonite material, in which the instantly claimed particle sizes are shown to provide improved abrasion resistance and stain resistance to the surfaces treated with them.

Regarding applicant's arguments of unexpected results demonstrated in the instant specification, page 7, Table 1. The examiner argues that the showing is not commensurate in scope with the instant claims which are directed to numerous clay particles and sizes and not exclusively the select species and sizes for which improved shaveability and shrinkage temperatures have been shown.

Response to Argument D: Rejection Under 35 U.S.C 103 (Plapper and Christner)

The applicant argues that one of ordinary skill in the art would not have been motivated to select the clay nanoparticles taught by Christner for use as carriers in the tanning methods taught by Plapper and further argues demonstration of unexpected results of the instantly claimed particle sizes in the applicant's specification, page 7, Table 1.

The examiner respectfully disagrees. Plapper clearly teaches the use of carriers such as bentonite in tanning methods for the treatment of leather (column 18, lines 20-35). Christner teaches treatment of leather surfaces with kaolin, bentonite or montmorillonite particles of 0.5-5 μm size (column 5, lines 20-41) because they are

commercial grade flakes (column 5, lines 35-45). While Cramer does not specifically disclose tanning, one of ordinary skill would have been motivated to employ the particles of Christner into the tanning methods of Plapper because Plapper invites the inclusion of bentonite particles in the tanning methods and Christner clearly teaches treating similar leather surfaces with particles of the same bentonite material, in which the instantly claimed particle sizes are shown to be conventional commercial grade flakes and are useful in leather processing in conventional pretanning steps such as soaking, degreasing, bating and deliming.

Regarding applicant's arguments of unexpected results demonstrated in the instant specification, page 7, Table 1. The examiner argues that the showing is not commensurate in scope with the instant claims which are directed to numerous clay particles and sizes and not exclusively the select species and sizes for which improved shaveability and shrinkage temperatures have been shown.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Amina Khan/

Examiner, Art Unit 1796

April 10, 2008

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796

Conferees:

/Lorna M. Douyon/

Primary Examiner, Art Unit 1796

/Gregory L Mills/
Supervisory Patent Examiner, Art Unit 1700